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The decisive factors for profitability in direct reuse of polystyrene packaging materials

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Research question

“What are the decisive factors for profitability for a firm’s operation of a reverse supply chain (RSC) that takes back and reuses polystyrene packaging materials?”

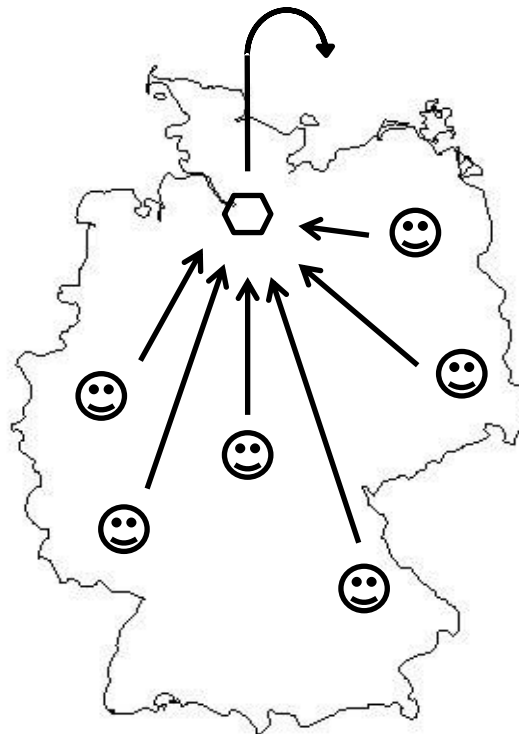
Methodology and empirical approach

Using data from a Danish manufacturer of measurement instruments, the paper first identifies the total set of variables that are relevant for determining the profitability of reusing polystyrene packaging materials, and second assesses the relative impact among the identified factors.

The paper’s theoretical basis is the RSC literature’s business perspective formulated by Guide and Van Wassenhove.

Case

The case firm ships more than 12.000 packages to the German market each year. Today, the firm purchases packaging materials for all shipments. The paper determines the financial performance of a RSC that takes back materials for reuse. In the take back scenario all materials are assembled in a hub in Hamburg and shipped to Denmark for reuse.



Results

The RSC earns nearly 1 mio. DKK in yearly profits. The drivers of this profitability are:

- 1) The the amount of avoided costs of purchasing new packaging materials
- 2) The firm’s ability to reduce costs of reverse logistics

In addition, taking back packaging materials relieves customers of handling and disposing materials leading to higher customer satisfaction.

Theoretical and practical relevance

Traditionally and on all continents, RSCs have been viewed as a nuisance or necessary evil. This applies in industry and academia alike. However, the emerging business perspective on the RSC challenges the view and this study contributes to the perspective by reporting on the profitability of the study’s case.